

## SGS SERVICES FOR **RISK MITIGATION**

Across the minerals sector, SGS is known to have a proven track record for providing bankable exploration, mining and metallurgy services to projects globally. Our capabilities help you mitigate technical, environmental, economic, social risks and health and safety risks. We have industry-leading expertise to help you address ore variability (spatial risk), metallurgy and plant design, water and power use as well as capex and opex requirements.

SGS has the objective and independent means to help you optimize your project planning and execution.

### EXPLORATION AND RESOURCE DEVELOPMENT

- Project management and drill program supervision
- Geochemical testing for 80+ elements
- SGS Geometallurgical Framework to assist with domain definition and sampling
- Caustic fusion and heavy mineral separations
- Orebody modeling and resource calculations
- NI 43-101 and JORC Technical Report writing
- Environmental and geotechnical baseline studies

### PRE-FEASIBILITY STUDIES

- SGS Geometallurgical Framework to create and populate block models with grade, metallurgical, environmental and geotechnical data
- Metallurgical flowsheet development and testing, geometallurgy
- Acid rock drainage testing
- High Definition Mineralogy
- NI43 101 and JORC Technical Report writing or audit

### FEASIBILITY STUDIES

- Bankable pilot plant testing
- SGS Geometallurgy Framework to support economic evaluation of process and mine planning, modeling and optimization
- Environmental Impact Assessment
- Mine closure and rehabilitation planning
- Production of market samples

### TECHNICAL DUE DILIGENCE

- Laboratory due diligence reviews
- Plant design, efficiency and operation audits
- Review of business plan and financial models
- Review of construction and commercial agreements
- Permit and license reviews
- Environmental, sustainability, ethical & social audits

### CONSTRUCTION SUPPORT

- Project management and reporting
- Procurement support
- Work supervision at site
- Budget and schedule control, optimization
- Construction monitoring



**COMMISSIONING SUPPORT**

- Metallurgical start-up support and training
- Project experts on-site
- Optimization and definition of KPIs for plant operation
- Site visits and progress reports
- Completion certification report

**PRODUCTION SUPPORT**

- On-site laboratories
- Production forecasting and planning

- Metallurgical accounting and calculation of monthly metal balances
- Process control and advanced systems
- Plant debottlenecking, optimization and audits
- Environmental issues (cyanide, acid rock drainage, process water treatment and GHG)
- Toll milling support, smelter support, industrial product recycling
- Periodic operation monitoring for banks

**SHIPPING AND COMMERCIAL TRANSACTION SUPPORT**

- Umpire, settlement and related commercial analysis and arbitration expertise
- Sampling, inspection, witnessing and analysis of products
- Supervision of loading, transfer and discharge
- Calibration of weighing systems and verification of documentation
- Warehousing, stock management and monitoring agreements



**CONTACT INFORMATION**

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